PROJECT NUMBER: 1708
PROJECT TITLE: Physical and Chemical Properties of Tobacco
PROJECT LEADER: M. E. Counts
PERIOD COVERED: July, 1987

I. ALTERNATE HUMECTANTS

A. **Objective**: To find a plasticizer/humectant system that provides acceptable sheet materials without glycols.

B. **Status**: In testing different ways for introducing propylparaben into BL Plant process, it was found that sheet subjectives were acceptable when propylparaben was added to the final slurry. Subjectives were not acceptable if propylparaben was added in the starting chemicals at the beginning of the process. Based on this, sheets of RCB were made in C Pilot Plant to test the two approaches for introducing K-propylparaben into RCB. These sheets have been made into cigarettes and are currently undergoing subjective analysis.

II. GLYCERIN FREE SHEET

A. **Objective**: To provide acceptable RLTC, RL150B, and RCB sheets for the European market which are glycerin free.

B. **Status**: Subjective and physical evaluation of glycerin free RLTC and RL150B sheets was completed. Results indicate that, if glycerin is replaced with an equivalent amount of PG, no significant differences in either subjectives or physical properties are detected when compared to respective controls containing standard amounts of glycerin and PG.

III. MECHANICAL PROPERTIES OF BONDED CIGARETTES

A. **Objective**: To characterize the response of bonded and unbonded cigarettes to compression.

B. **Status**: Force-displacement tests were done on Marlboro rods (from packs) and pectin-steam bonded 725 mg test cigarettes at a constant strain rate of 0.05 mm/second. The force-displacement curves for the cigarette types were different. The higher initial force vs displacement slope for the bonded cigarette was indicative of higher stiffness. The slope change decreased at higher loads and eventually was parallel with the force-displacement curve of the Marlboro control. The bonded cigarette slope deflection may signal bond breakage. This approach is encouraging and will be continued with suitable bonded rods and unbonded controls of the same density, with and without binder.

IV. MECHANICAL PROPERTIES OF PACK OVERWRAP

A. **Objective**: To compare stress relaxation properties of various pack overwraps.

B. **Status**: A memo describing the differences between Marlboro and Winston overwraps was issued. Manufacturing personnel are being consulted, and future work plans will be designed according to the problems associated with films.